



August 2, 2010

Mr. James Marshall
Senior Engineer
California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive #200
Rancho Cordova, CA 95670

SUBJECT: Tentative Order No. R5-2010-XXXX, Amending Waste Discharge Requirements
Order No. R5-2007-0132-02 (NPDES Permit No. CA0079049)

Dear Mr. Marshall:

The City of Davis (City) appreciates the Central Valley Regional Water Quality Control Board's (Regional Board) efforts to review and evaluate permit modifications requested by the City based on new information. Overall, the City supports the revisions as proposed by Regional Board staff. However, based on our review of the draft amendments to the City's NPDES permit (Tentative Order), we have a few additional comments on the following issues, which are addressed accordingly here.

Our comments are discussed below under the following topics:

- Ammonia Effluent Limits
- Turbidity
- Redundant Monitoring Requirements
- Pattern of Toxicity
- General Comments
- Clarifications
- Corrections

Ammonia Effluent Limits

As requested, the acute criteria (CMC) for ammonia have been calculated based on an effluent pH of 8.0. However, the proposed chronic criteria (CCC) are calculated based on paired pH and temperature data for both effluent and downstream receiving water using the lowest CCC, which in the case of Discharge 001 is the receiving water condition. The City contends that it is inappropriate to determine ammonia effluent limits based on the downstream receiving water

condition for a discharge that does not receive dilution. The changes in pH and temperature that occur downstream of the discharge are due to the ambient conditions, which may be influenced by factors that cannot be controlled or anticipated by the City (e.g., weather, illicit discharges, runoff, wildlife, etc). For example, Willow Slough Bypass ambient water flows (and therefore quality) are influenced by operation of Merritt Dam (collapsible diversion weir constructed just downstream of Willow Slough bifurcation). The diversion weir is closed on April 1st and opened on November 1st each year. When the diversion weir is closed, water within Willow Slough Bypass consists of agricultural tailwaters, incidental runoff, and illicit discharges. The levels of acidity and alkalinity of Willow Slough Bypass water is greatly influenced by regional conditions during this period. Ambient water quantity and quality within the southernmost reach of the Conaway Ranch Toe Drain is influenced by like regional factors (i.e., wind, temperature, regional precipitation, wildlife, etc.).

Because there is significant variability in downstream conditions due to uncontrollable factors, the City believes it is more appropriate to use effluent conditions to calculate effluent limitations for ammonia.

With respect to Discharge 002, the proposed effluent limitations are already calculated based on effluent pH and temperature data. Thus, the City requests no further changes to the proposed effluent ammonia limitations for Discharge 002.

For Discharge 001, the City requests the proposed effluent limits be revised to the values shown in Table 1, which are the calculated effluent limitations when using only effluent conditions for pH and temperature.

Table 1. Requested NPDES Permit Effluent Limits for Ammonia at Discharge 001 (mg/L)

Discharge 001	AMEL	MDEL
1 March – 31 October (season 1)	2.4	7.6
1 November – 29 February (season 2)	3.4	6.1

The effluent limits for ammonia shown in Table 1 are calculated using a permitted frequency of 5 samples per week, a coefficient of variation of 0.84 for season 1 and 0.33 for season 2 (calculated from effluent ammonia data), and the minimum 99.9th percentile of the 30-day chronic criteria (CCC) for each season, which was calculated using paired 30-day running average effluent pH and temperature data. The running averages were calculated only for dates on which effluent data were available. The 30-day running averages do not bridge seasonal gaps, but begin 30 days after each season begins.

Using effluent data only to calculate the ammonia effluent limits for Discharge 001 is appropriate for several reasons. First, effluent limitations for the City are set at the end-of-the-pipe without consideration of dilution because there is insufficient information to indicate that dilution is consistently available. When end-of-pipe effluent limits are required, the Regional Board recognizes that it is inappropriate to use mixed downstream receiving water data to calculate effluent limitations. For example, in the Tentative Order, the Regional Board proposes to state as follows (Fact Sheet, page F-17):

“A mixing zone has not been allowed in this Order. Therefore, site-specific translators based on the mixed downstream receiving water monitoring data are not appropriate, because end-of-pipe effluent limits are required. The site-specific translators for copper, lead, and nickel based on the effluent monitoring data are appropriate for development of end-of-pipe water quality-based effluent limits. Therefore, this Order allows the use of the site-specific metals translators based on the effluent...”

Further, receiving water data indicate that the ambient conditions directly correlate to the limiting factors for each season. For example, the temperature component of the CCC equation drives the lowest CCC during season 1. During season 1, the highest (most limiting) temperatures measured at R-2 occurred during the months of July, as shown in Figure 1. In July, there is water in the Toe Drain due to agricultural runoff. Thus, temperatures at R-2 are not reflective only of effluent and are influenced by agricultural runoff from upstream, which is outside of the City’s control.

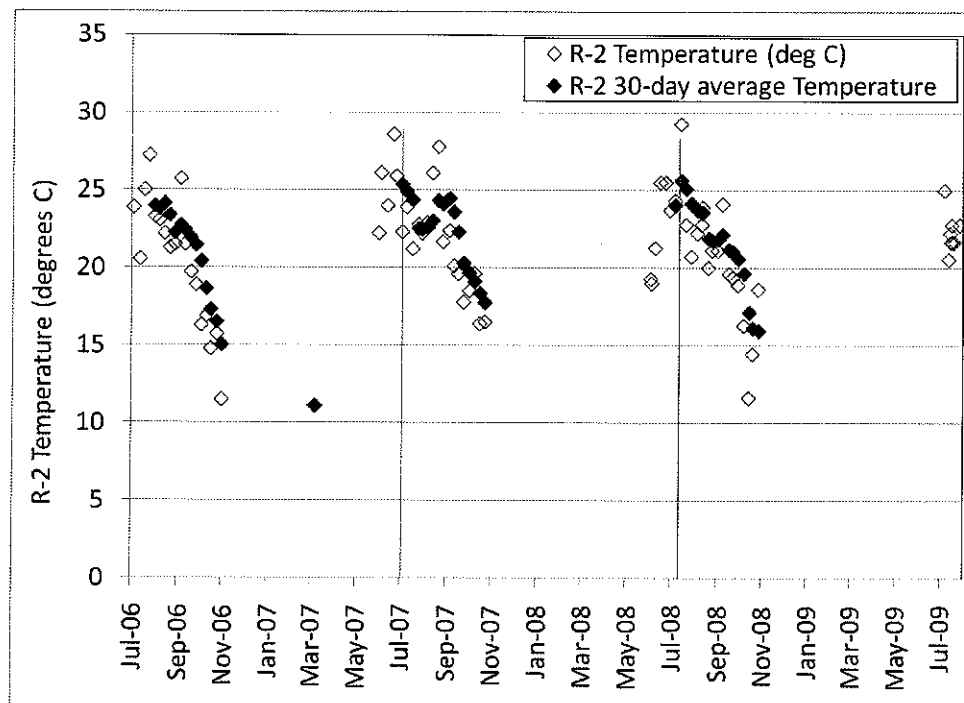


Figure 1. Season 1 Temperature at R-2

The receiving water data also shows that the pH component of the CCC equation drives the lowest CCC during season 2. The highest (most limiting) season 2 pH values measured at R-2 occurred during the months of November and January, as shown in Figure 2. Specifically, in January 2007, very low flows were calculated for R-1 (0.5 – 1 mgd), and three beaver dams were observed downstream. Due to the low upstream flows and the beaver dams, downstream water stagnated, which resulted in higher pH values.

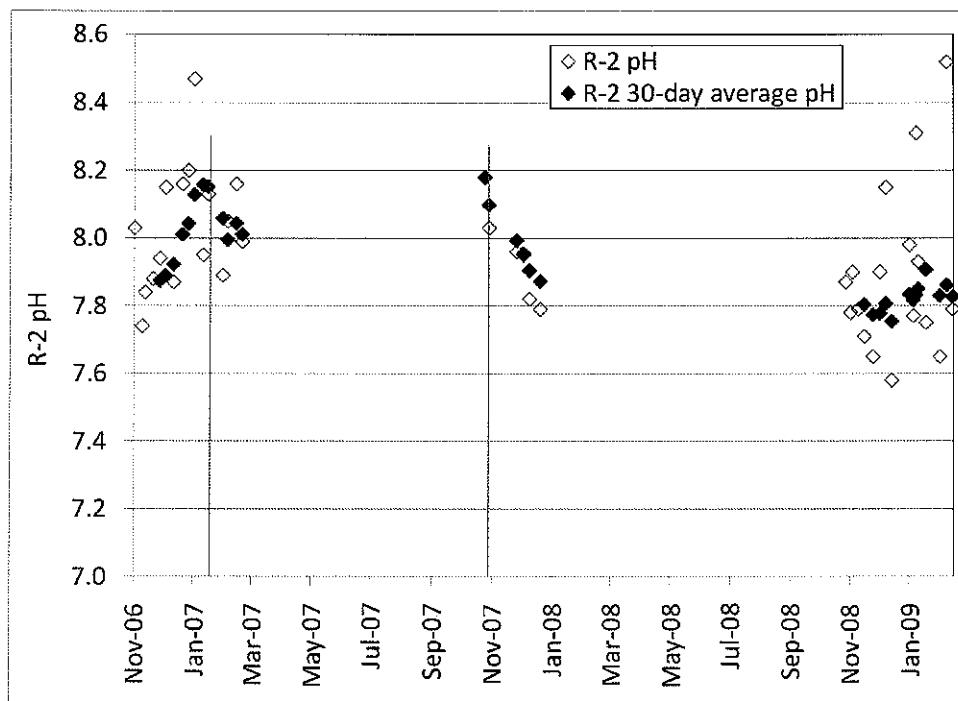


Figure 2. Season 2 pH at R-2

Due to the variability of ambient conditions and the lack of dilution, the City contends that effluent limits for ammonia should not be based on temperatures elevated by agricultural runoff, nor on pH levels collected during times of low flow and stagnant water. Instead, ammonia effluent limits for Discharge 001 should be based on the effluent pH and temperature conditions and set equal to the values shown in Table 1.

Lastly, using effluent data would also be consistent with comments from Regional Board enforcement staff in letters to Keith Smith dated June 15 and July 22, 2010 in which the Regional Board agrees with the City's statements that the receiving water quality (pertaining to Dissolved Oxygen) was "possibly caused by factors outside the control of the Discharger."

Turbidity

As stated in Section V.A.17 (p.18) and Attachment F Section V.A.1.q (p. F-72), the receiving water limitations for turbidity are based on the Basin Plan turbidity objectives. However, the receiving water limitation for the lowest range of background turbidity does not reflect the latest Basin Plan and the amendments to the turbidity objectives adopted by Resolution R5-2007-0136 and approved by the EPA in July 2009. The first permitted receiving water limitation for turbidity (V.A.17.a) on page 18 should be replaced with:

~~a. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs.~~

a.i. More than 2 NTUs due to controllable factors, where natural turbidity is less than 1 NTU.

a.ii. More than 1 NTU where natural turbidity is between 1 and 5 NTUs.

The first part of the quotation of Basin Plan turbidity limitations on Attachment F page F-72 (V.A.1.q) should be replaced with:

- ~~*Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not be more than 1 NTU.*~~
- *Where natural turbidity is less than 1 Nephelometric Turbidity Unit (NTU), controllable factors shall not cause downstream turbidity to exceed 2 NTUs.*
- *Where natural turbidity is between 1 and 5 NTUs, increases shall not exceed 1 NTU.*

Redundant Monitoring Requirements

The proposed Priority Pollutant Metals Study for the receiving water described in Special Provision VI.C.2.h (p. 30) and Attachment F (p. F-83) contains redundant monitoring provisions to current monitoring requirements in the permit, which could result in collection of additional and unnecessary data. The permit currently requires routine receiving water monitoring for pH and EC (weekly) and hardness (quarterly). Therefore, the City proposes to collect pH, EC, and hardness data in a manner that satisfies both requirements, and not collect pH or EC twice weekly (for example) due to overlapping requirements.

Additionally, the need for monitoring alkalinity and TSS is unclear. The City requests additional clarification of the purpose for alkalinity and TSS monitoring, and requests the monitoring be eliminated if determined to be unnecessary for the purpose of the study.

Pattern of Toxicity

There are several places in the Tentative Order where the phrases “pattern of toxicity” or “pattern of effluent toxicity” have been edited to remove “pattern of.” However, a “pattern of toxicity” has a precise meaning in the context of accelerated monitoring and for requiring a TRE. As cited in the tentative order: “The TSD at page 118 states, ‘EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required.’” This is the basis for saying that a “pattern of toxicity” (i.e., more than 20 percent of the time whether repeatedly or periodically) triggers a TRE rather than a single test failure. In order to maintain this clarification, the Discharger requests the following edits to retain the precise use of “pattern of toxicity”:

p.25, Section VI.C.2.a.ii., “WET testing results exceeding the monitoring trigger during accelerated monitoring demonstrates a pattern of toxicity and requires the Discharger to initiate a TRE to address the effluent toxicity.”

p. F-61, Section VI.C.5., “This Order requires the Discharger to initiate a TRE to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity if a pattern of toxicity is observed during accelerated monitoring.”

p. F-62, Section VI.C.5.b., "If the discharge demonstrates a pattern of toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE work plan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if a pattern of effluent toxicity has been demonstrated."

p. F-78 and F-79, Section VII.B.2.a., "In addition, the provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity has been demonstrated.

Monitoring Trigger. A numeric toxicity monitoring trigger of $> 1 \text{ TUc}$ (where $\text{TUc} = 100/\text{NOEC}$) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits a pattern of toxicity at 100% effluent.

Accelerated Monitoring. The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is a pattern of toxicity before requiring the implementation of a TRE."

In addition, there are instances in the Tentative Order when the precise use of "pattern of toxicity" is not needed or intended. Thus, the Discharger concurs with the following, existing edits and proposes an additional edit (underlined) for further clarification:

p.26, Section VI.C.2.a.iv.a.), "However, notwithstanding the accelerated monitoring results, if there is adequate evidence of ~~a pattern of~~ effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE."

p. F-79, Section VII.B.2.a., "However, notwithstanding the accelerated monitoring results, if there is adequate evidence of ~~a pattern of~~ effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE."

General Comments

Sections IV.A.1.c and IV.A.2.c, pages 10 and 11: The City requests that the acute toxicity bioassay not be required in months when the chronic toxicity bioassay is performed.

Sections IV.A.1.d and IV.A.2.d, pages 10 and 12: The City requests that the monthly mass discharge limit for mercury be replaced with the calculated calendar year average (from p. E-16).

Clarifications

Section VII.C.2, page 38: If the monthly mercury limit is kept, revise the average monthly calculation procedure to describe the median value method from Attachment E Section IX.A.6

(p. E-15). The current procedure for calculating average monthly mercury mass loadings requires a value of half the detection limit if a sample is non-detected. This is contrary to Attachment E Section IX.A.6 (p. E-15), Multiple Sample Data, which states that the monthly data set shall be ranked from low to high, ranking the non-detected determinations lowest, and that the Discharger shall compute the median value in place of an average when multiple samples are taken and some have non-detected or J-flag results. The City requests that Section VII.C.2 be revised to describe the median value method from Attachment E to maintain consistency.

Attachment E, Section IV, page E-3: "in Table E-3" should be inserted into the paragraph as follows: "...for all of the constituents listed in Table E-3, below,..." This removes the possibility of "below" describing Tables E-4 or E-4, which contain parameters that require daily to annual monitoring.

Corrections

Attachment E, Sections IX.B.3.c and f, pages E-16 and E-17: Incorrect references: Mercury (3.c) should refer to Section VII.C on page 38 and Coliform (3.f) should refer to Section VII.F on page 39.

Attachment F, page 1: Remove Jim Beatty's name and information.

Thank you again for this opportunity to review the draft amendments. Please do not hesitate to contact me should you have any questions or concerns regarding these comments.

Sincerely,



Keith A. Smith
Utilities Engineer

Cc: Betsy Elzufon, LWA
Tess Dunham, SSD
Elizabeth Lee, CVRWQCB

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